

3.4 LONG-TERM TRENDS IN RELATIVE WAGES. ARE THERE ANY SIGNS INDICATING SHORTAGE?

ÉVA CZETHOFFER & JÁNOS KÖLLÖ

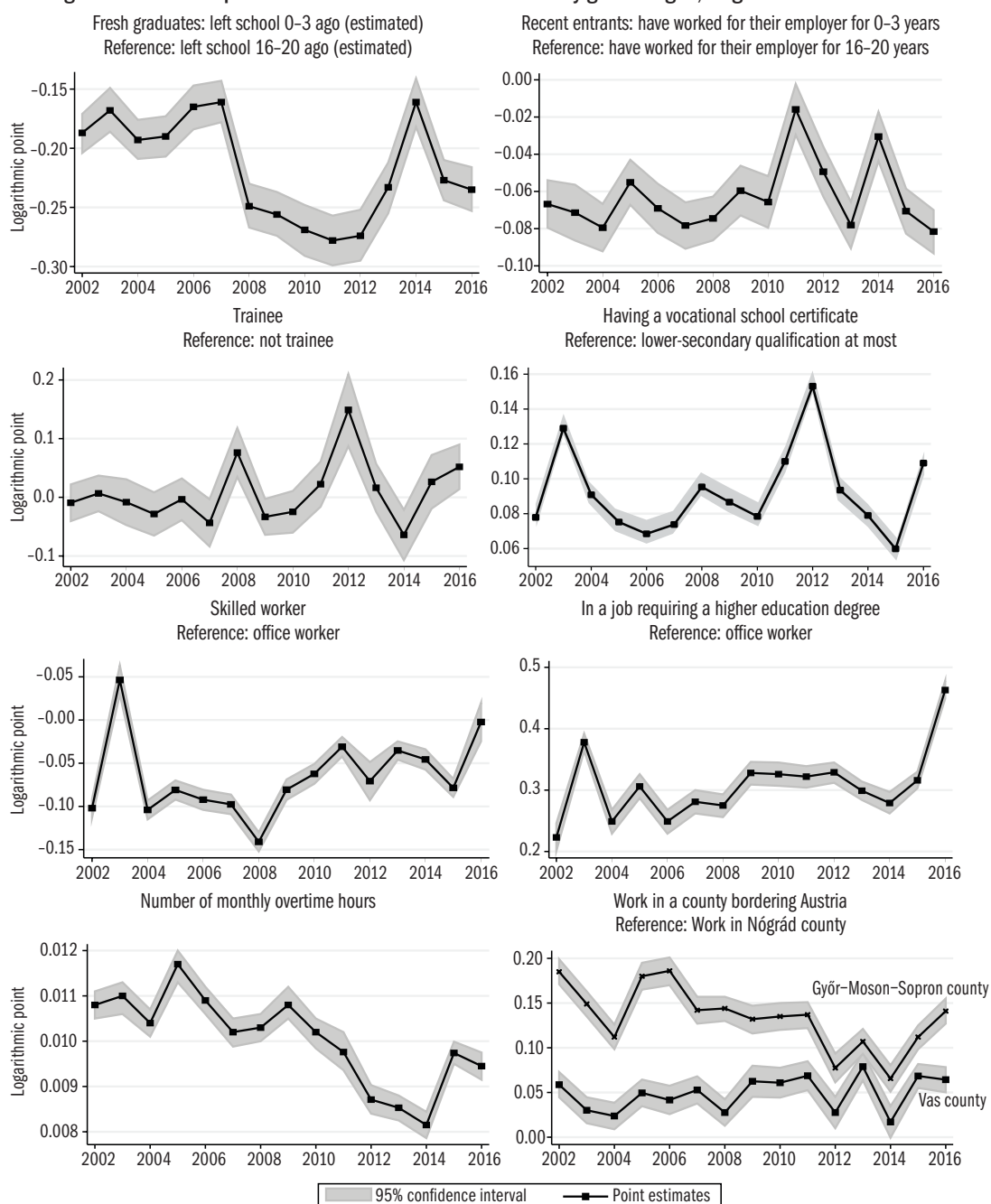
Wage increase has considerably accelerated in the last two years and many explain it by the emergence of shortage. In 2016, there was an outstanding real wage increase near or at the level of earlier peaks (1994, 2001–2003, 2005), while the various shortage indicators have also started to grow rapidly.¹ This does not necessarily imply that there is causality between the two phenomena. A possible causality is assessed through indirect effects in the subchapter (while Subchapter 3.3 analyses the direct relationship between certain shortage indicators and wages). We examined whether wages in the groups of workers and firms impacted more strongly by the changes on the supply side (headcount loss, emigration, retirement) or are “well-known” to be affected by labour shortage (skilled workers, manufacturing companies) increased more rapidly.

Wage growth was explored in two steps. First, we estimated individual wage equations from the millennium to 2016 and drew conclusions from the changes in the impact of individual and contextual characteristics on wages in order to examine the potential role of recruitment difficulties. Then, we evaluated the impact of enterprise characteristics, including workforce composition on annual enterprise-level wage increase. The study below only discusses the parameter time series of variables suitable for (indirectly) identifying shortage; the detailed results are available upon request in a Stata or Excel database. The research was restricted to the business sector.

Figure 3.4.1 shows how the wages of fresh graduates, trainees, recent entrants, those with a vocational school certificate, skilled workers and higher education graduates changed between 2002 and 2016. For more explanation on the graphs, see the note below the figure.

The wage disadvantage of *fresh graduates* relative to those in the labour market for 16–20 years ranged between 17–27 per cent and decreased in the period 2014–2016, compared to the period of the economic crisis and recovery, but it did not drop below the level seen in the 2000s. No marked break is observed in the period when complaints of shortage became more frequent. Similarly, there is no marked break in the case of *employees working for their present employer for a maximum of three years*: their wage disadvantage relative to employees working for their employer for 16–20 years ranged between 4–8 per cent, except for two years, and it has not decreased recently. A slightly growing trend is seen in the time series of *trainees* but the wages at the end of the period are not significantly different from wages in the early 2000s; additionally, there is no sharp change between 2013 and 2016, in the period of growing recruitment difficulties.

¹ For more details, see the section titled *Statistical data*.

Figure 3.4.1: The impact of individual factors on the monthly gross wages,^a regression coefficients

^a The graphs indicate how many logarithmic points (or, if multiplied by one hundred, roughly how many percentage) is the gross wage of the category lower or higher than the that of the reference category. The curve indicating the effect of overtime

shows by how many logarithmic points one hour of monthly overtime increases the monthly gross wage. The grey areas (the confidence intervals) indicate that the strength of the effect is estimated to be between the limits shown, with a 5 per cent risk of errors. All effects are partial, that is, they are valid if controlling for all other factors. The equations contained the following variables: gender, time spent in the labour market, time at employer, educational attainment level, occupation (based on the one-digit codes of the Hungarian Standard Classification of Occupations), trainee, number of overtime hours, part-time employment, fixed-term contract, majority foreign ownership of employer, sector, county where sites are located. The estimation only covers the business sector.

Note: Dependent variable: logarithm of monthly gross wage.

Source: Wage Surveys, 2002–2016.

The time series of the wage advantage of those with a *vocational school certificate* (those who obtained a certificate not entitling them to higher education studies) does not show a growing tendency of relative wages, which would boost the supply of workforce with this level of qualification. At the same time, the wages of *skilled workers* began to grow strongly after the trough in 2008: their wage disadvantage relative to office workers (15 per cent) had completely disappeared by 2016. A sharp change is observed in the wage increase of those working in *occupations requiring a higher education degree* (also compared to office workers) in 2015–2016.

Surprisingly, instead of a rise, there was a decline in the contribution of *overtime* to earnings: while ten hours a month overtime increased the monthly gross wage by 11 per cent in 2002, this effect decreased to 9 per cent in 2016, which is a small but statistically significant change.

Finally, wages (controlling for all other factors) did not increase among *those working near the Western border*, in Győr-Sopron-Moson and Vas counties, which are the most affected by commuting to Austria: wages in the former rose slightly but continuously, wages in the latter dropped slightly compared to the reference, Nógrád county.

A separate figure presents trends in *sectoral wage differentials*, controlled for workforce composition, company size, ownership and geographical location (*Figure 3.4.2*). Two tendencies are worth noting: wage advantage in the financial sector decreased considerably after 2006 and the position of manufacturing industry improved after 2012.²

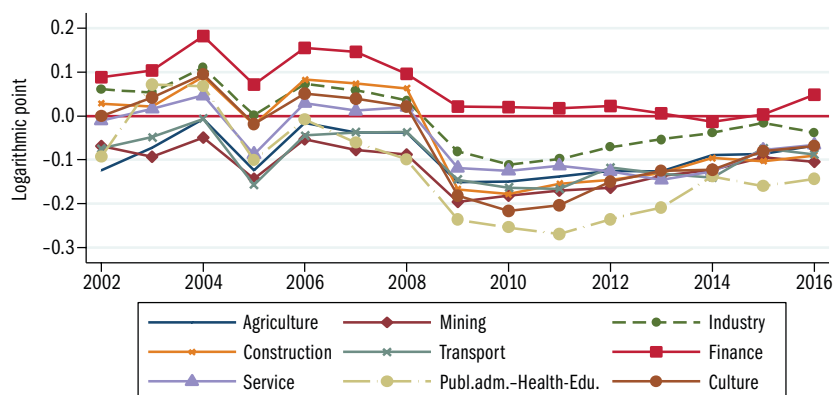
Overall, there were only two cases when the tendencies in individual wages changed in a direction and extent that would imply that labour shortage may play a role at all: one is the increased the appreciation of *occupations requiring a higher education degree*, the other is improvements in wages in *industry*. None of the other variables included either in the figures or in the analysis in general changed in a way that would suggest a strong relationship between the increasing occurrence of shortage and accelerating wage hikes.

The enterprise-level regressions based on short (biannual) panel data explain *changes* in annual average wages from 2002–2003 to 2015–2016. The most relevant time series of parameters are included in *Figure 3.4.3*.

² In this case we did not present the confidence intervals for the point estimates for the purposes of clarity.

Figure 3.4.2: Sectoral wage advantages, 2002–2016

Sectoral wage differentials 2002–2016; Reference: Energy and water



Companies with many *employees approaching the retirement age* are more affected by the scarcity of supply. The effect of the higher proportion of elderly employees increased after 2005 but the period of more severe shortage did not have an impact on this tendency. The point estimates indicate an increase but the confidence intervals measured at the beginning and end of the period overlap, that is, the difference is not statistically significant.³

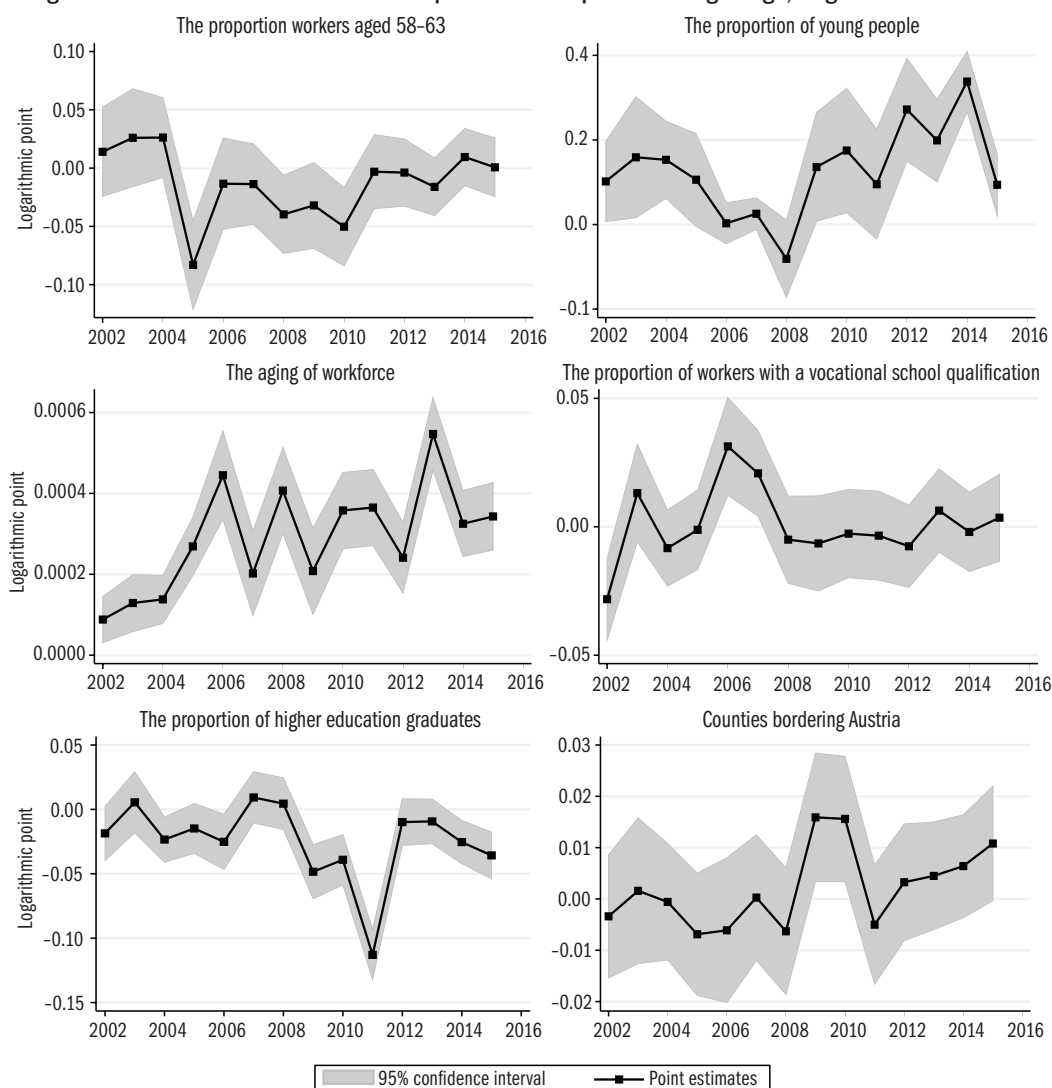
The *proportion of young people* was accompanied by above average growth rate of wages in the entire period of the analysis, except for one year. Companies employing more young people are impacted by fluctuation and emigration (increasing among young people) more than the average, which may have played a role in the acceleration of wage growth after 2008. However, the confidence intervals estimated for the years before and after the crisis also overlap in this case.

Labour turnover: when there is no churning, the average tenure of employees increases by one year within a year – if the figure is higher, it indicates the aging of the company. This was accompanied by above-average *wage growth* during the entire period studied, which suggests the failure of efforts for ensuring supply rather than intentionally neglecting it. The relationship grew stronger; however, not after 2013 but continuously over the whole period examined.

Firms employing more workers with a *vocational school qualification* raised wages at an average rate over the whole period examined (except for 2003–2004). This pattern did not alter in the years of more frequent complaints of skilled worker shortage in 2013–2016. The effect of the proportion of *higher education graduates* did not change after 2013 either.

At firms with one or more sites in Győr-Sopron-Moson or Vas counties, point estimates suggest a gradual acceleration of wage growth but figures calculated for the beginning and end of the period do not differ significantly.

³ It is worth noting that the aging of workforce impacts the various occupations, sectors and regions similarly; however, there are extreme differences at enterprise level: according to the data of the National Pension Insurance, 60 per cent of firms have no employees approaching the retirement age (aged 59–63), while at the remaining 40 per cent their proportion is more than twice the overall average.

Figure 3.4.3: The effect of workforce composition on corporate average wage,^a regression coefficients

^a The graphs indicate how many logarithmic points (or, if multiplied by one hundred, roughly how many percentage) was the average corporate wage growth faster or slower as a result of a one unit change in the explanatory variable. The grey areas (the confidence intervals) indicate that the strength of the effect is estimated to be between the limits shown, with a 5 per cent risk of errors. All effects are partial, that is, they are valid if controlling for all other factors. The equations contained the following variables not presented in the figure: the proportion males, the proportion of graduates from general upper-secondary and vocational upper-secondary schools, the proportion of workers on minimum wage, the proportion workers with a fixed-term contract, headcount, sector. Young = finished school a maximum of three years ago (estimated value). The aging of workforce = change in the aver-

age service time in a year. The years refer to base years. The estimation only covers the business sector.

Note: Dependent variable: the logarithm of the annual changes in corporate average wages.

Source: Wage Surveys, 2002–2016.

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In conclusion, the data on relative wages, obtained from a large sample, do not indicate that labour shortage would play a decisive role in the rapid wage growth of recent years. Point estimates suggest rising wages among young people, in skilled worker positions and occupations requiring a higher education degree as well as in industry. They also show faster corporate wage increase at companies more affected by demographic replacement, staff turnover and emigration but hardly any of the changes are significant and the point estimates indicate long-term tendencies instead of a sharp break in the years of worsening labour shortage. Although there have been several cases (e.g. in large shopping centres) of significant pay rises resulting from increasingly severe recruitment difficulties, these did not alter the Hungarian wage hierarchy until 2016.